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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/890,366      | 07/26/2001  | Man Soo Choi         | YPLEE7.001AP        | 1934             |

20995 7590 03/17/2006

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| EXAMINER |
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HOFFMANN, JOHN M

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| ART UNIT | PAPER NUMBER |
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1731

DATE MAILED: 03/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/890,366

Applicant(s)

CHOI ET AL.

Examiner

John Hoffmann

Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 August 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,9-14 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,9-14 and 17-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 18 January 2006 has been entered.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 and 10-14 and 17-23 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Examiner could find no support for the newly claimed selecting steps. Applicant argues that Kamijo does not have the selecting steps. It seems to Examiner, if the Kamijo process does not implicitly have selecting steps, then Applicant's disclosure

Art Unit: 1731

does not implicitly have selecting steps. This is deemed to be a prima facie showing on failure to comply with the requirement. The burden is now on Applicant to show the requirement is complied with, or to amend the claims so that they comply.

New claim 22 requires the first pass of the laser has a power to coalesce and convert the particles for a first pass in conjunction with the redirecting for a second pass. Examiner could find no support for this combination. It is quite clear from page 9, lines 15-17 that multiple passes are needed to give enough energy to the particles.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11-14 and 17-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The various "selecting" steps reads on a nebulous mental step conducted prior to the manipulative steps of the claimed process, hence rendering the present process claim unclear in meaning in scope. If applicant wishes to patent detail controls over the recited process, then the manipulative process steps must be positively recited. See *Seagram & Sons Inc. vs Marzall, 84 USPQ 180.*

***Claim Rejections - 35 USC § 103***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, and 9-14 and 17-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamijo 4556416.

See how Kamijo was applied in the prior Office action. Claim 1 newly requires a selecting step – examiner could not find any description of this selecting step. Thus it is deemed that the selecting is any sort of selecting with or without a person, with or without an apparatus, intentional or random. Since Kamijo has a power level, it was inherently selected somehow.

Claim 1 also newly requires converting the aggregates into smaller fine, substantially spherical particles. Whereas Kamijo does not teach this, Kamijo teaches the creation of “super-fine” particles (claim 1, lines 18-20, 28) and that such are in strong demand. Clearly, for a given particle mass, a sphere would correspond to the smallest particle. In other words: a particle that is not spherical could be made smaller by making it spherical. Examiner analogizes with a piece of clay: if it is flat, or elongated, or any other shape, one could reduce the maximum dimension(s) until they are all the same (i.e. a sphere).

It is deemed that performing routine experimentation to obtain the optimal conditions for making the smallest particles, one would inherently realize the same result: particles that have been coalesced into spherical particles.

Alternatively: The “sufficient to cause” limitation does not actually require causing. Compare the explicit “supplying”, “generating”, “forming”, “irradiating”, and “selecting”. Since the claims has no step of “causing” it is presumed that applicant does not intend the claims to be limited to a method which has “causing”. Therefore the

Art Unit: 1731

power is “sufficient” to coalesce, when used with other features not claimed or even used – such as mirrors. This is not to be interpreted as saying it would have been obvious to use such features, rather it appears applicant does not intend to require that spherical particle must be made. The reason that Examiner is of this opinion: new claim 22 indicates that the directing of the laser with sufficient power does not require the power be sufficient all by itself, rather it requires a reflection of the laser – see page 9 of the specification as well as the rejection under 35 USC 112 1<sup>st</sup> paragraph. In other words: Examiner sees only two ways to interpret claim 22 – a narrow interpretation supports the 35 USC 112 1<sup>st</sup> paragraph – the broader interpretation supports the conclusion that the “sufficient to cause” language does not require a step of actually causing.

The sole figure (and the associated text) of Kamijo discloses the step of supplying the reactants through ports 4 and 5 to a flame 9 and then irradiating the beam with a laser. Kamijo does not disclose the details regarding the particle nuclei, aggregates, growing, etc.

However, Kamijo discloses controlling the process via various parameters: col. 1, lines 60-63; col. 2, lines 65-68. It would have been obvious to perform routine experimentation to determine the optimal processing parameters – depending upon what sized particles are desired.

Art Unit: 1731

**2144.05 [R-1] Obviousness of Ranges**

See MPEP § 2131.03 for case law pertaining to rejections based on the anticipation of ranges under 35 U.S.C. 102 and 35 U.S.C. 102/103.

**II. OPTIMIZATION OF RANGES**

**A. Optimization Within Prior Art Conditions or Through Routine Experimentation**

Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) (Claimed process which was performed at a temperature between 40°C and 80°C and an acid concentration between 25% and 70% was held to be prima facie obvious over a reference process which differed from the claims only in that the reference process was performed at a temperature of 100°C and an acid concentration of 10%.); >see also Peterson, 315 F.3d at 1330, 65 USPQ2d at 1382 ("The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages.");< \*\* In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969) (Claimed elastomeric polyurethanes which fell within the broad scope of the references were held to be unpatentable thereover because, among other reasons, there was no evidence of the criticality of the claimed ranges of molecular weight or molar proportions.). For more recent cases applying this principle, see Merck & Co. Inc. v. Biocraft Laboratories Inc., 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989); In re Kulling, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990); and In re Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997).

**B. Only Result-Effective Variables Can Be Optimized**

A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) (The claimed wastewater treatment device had a tank volume to contractor area of 0.12 gal./sq. ft. The prior art did not recognize that treatment capacity is a function of the tank volume to contractor ratio, and therefore the parameter optimized was not recognized in the art to be a result-effective variable.). See also In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (prior art suggested proportional balancing to achieve desired results in the formation of an alloy).

In view of Applicant's disclosure, it is deemed that nothing special is required/done to achieve the formation of the aggregates, growing of particles, etc. That it is merely picking the right location to irradiate the flame. It is deemed that routine experimentation with the Kamijo process will yield the right gas flow so that laser is irradiated into the aggregates as claimed.



Art Unit: 1731

It is deemed that claim 9-10 are met, since Kamijo does the same thing as applicant, one would expect to get the same sized particles.

Claim 11: col. 2, lines 65-68 discloses controlling the laser power. It is deemed that such controls the phase.

Claim 12 is clearly met.

Claim 13: See col. 2, lines 41-44: there is no indication as to where the filter is. It would have been obvious to have the filter right above the flame so as to collect the particles as soon as possible after leaving the chamber. Having the filter at a lower location would require more conduits, and thus more cost and require more space. It is also an obvious matter of design choice.

**From MPEP 2144.04**

**C. Rearrangement of Parts**

In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) (Claims to a hydraulic power press which read on the prior art except with regard to the position of the starting switch were held unpatentable because shifting the position of the starting switch would not have modified the operation of the device.); In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA 1975) (the particular placement of a contact in a conductivity measuring device was held to be an obvious matter of design choice).

Claim 14 is clearly met.

Claims 17-20: As indicated above, it would have been obvious to perform routine experimentation to determine the optimal power level – depending upon the desired particle characteristics.

Claims 22-23: Kamijo does not teach the redirecting of the laser beam. Kamijo gives no guidance as to laser placement. It would have been obvious to perform routine experimentation to determine the optimal laser placement: this constitutes a redirecting

Art Unit: 1731

to the laser. Examiner also takes Official notice that it is well known that different portions of flames have different temperatures: it would have been obvious to perform routine experimentation to determine the optimal laser placement. Still further col. 1, lines 62-63 teach changing the gas flow- thus such would inherently change the flame size: further motivating one to conduct routine experimentation. Changing the laser location would constitute redirecting it to a new location.

**From MPEP 2144.04****C. Rearrangement of Parts**

In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950) (Claims to a hydraulic power press which read on the prior art except with regard to the position of the starting switch were held unpatentable because shifting the position of the starting switch would not have modified the operation of the device.); In re Kuhle, 526 F.2d 553, 188 USPQ 7 (CCPA 1975) (the particular placement of a contact in a conductivity measuring device was held to be an obvious matter of design choice). However, "The mere fact that a worker in the art could rearrange the parts of the reference device to meet the terms of the claims on appeal is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for the worker in the art, without the benefit of appellant's specification, to make the necessary changes in the reference device." Ex parte Chicago Rawhide Mfg. Co., 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984).

***Response to Arguments***

Applicant's arguments filed 1/18/2006 have been fully considered but they are not persuasive.

It is argued that Kamijo irradiates a gas, but the present invention irradiates a particles. Applicant does not point out where Kamijo teaches this. Nevertheless, Kamijo does not disclose that particles are irradiated, nor do the present claims

Art Unit: 1731

preclude the irradiation of the gases in addition to the particles. Furthermore, since applicant irradiates near the base of the flame (see figure 5), and Kamijo irradiates near the middle of the flame, it is reasonable to assume that since Applicant has particles at the base of the flame, Kamijo would also have particles at the middle portion (as well as the base). Moreover, as indicated in the rejection, it would have been obvious to perform routine experimentation to get the optimal parameters to obtain the "super-fine" particles.

It is further argued that Kamijo cannot control the shape and size of the particles. No evidence or rationale is given to support this assertion.

**From MPEP 2145 Consideration of Applicant's Rebuttal Arguments**

**I. ARGUMENT DOES NOT REPLACE EVIDENCE WHERE EVIDENCE IS NECESSARY**

Attorney argument is not evidence unless it is an admission, in which case, an examiner may use the admission in making a rejection. See MPEP § 2129 and § 2144.03 for a discussion of admissions as prior art.

The arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); In re Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a prima facie case of obviousness."). See MPEP § 716.01(c) for examples of attorney statements which are not evidence and which must be supported by an appropriate affidavit or declaration.

Furthermore Applicant and Kamijo do the same thing so there is a strong presumption that one would get the same result.

As to the argument that Kamijo does not teach spherical particles : see the above discussion that points out the "strong demand" for superfine particles would motivate one to minimize the size of the particles – which would necessitate the spherulization .

As to the argument that Kamijo does not disclose the power being a result effective variable with respect to the shape of the particle. The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). In other words: Applicant cannot get a patent for realizing the advantage of spherical particles, when one would inherently obtain spherical particles merely by following Kamijo's guidance to create the super-fine particles.

Regarding claim 21 is argued that Kamijo does not teach adjusting the distance. This does not appear to be relevant because the claims do not require a step of adjusting.

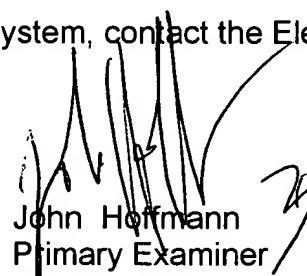
The arguments regarding claim 22 are not persuasive: see the above rejections as to why the features would have been obvious.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Hoffmann whose telephone number is (571) 272 1191. The examiner can normally be reached on Monday through Friday, 7:00- 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1731

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
John Hoffmann  
Primary Examiner  
Art Unit 1731

3-15-06

jmh